Year 12 CORE Maths

Subject and Year Group	Autumn 1 Year 12	Autumn 2 Year 12	Spring 1 Year 12	Spring 2 Year 12	Summer 1 Year 12
Topic/Unit to be studied	• Types of Data and collecting data • Representing data • Collecting and Sampling data • Numerical calculations • Limits of Accuracy • Percentages • Interest rates	• Analyse Critically • Representing data 2 • The Normal Distribution • Finance; Repayments and credit • VAT, Income Tax • National Insurance • Fermi Estimation • Equation of a line	• Probabilities, estimation, and confidence intervals • Correlation and regression • Perimeter and Area • Similarity and Pythagoras • Surface area and similarity	• Preliminary material	• Deliberate Practice and Procedural variation
Core Knowledge and skills	• Types of data. • The modelling cycle. • Averages and spread • Box and whisker plots • Stem-and-leaf diagrams • Constructing and interpreting diagrams for grouped discrete Data and continuous data and their appropriate use • Random, cluster, stratified and quota sampling methods • √population = sample size • Improving accuracy in sample, limitations of sampling • Order of Operations • Applying and interpreting limits of accuracy, error intervals due to truncation or rounding • Substitution into formulae • Percentages and percentage changes as a fraction or a decimal • Percentage increase / decrease and original value problems • Simple and compound interest • (AER) • Student loans and mortgages	• Critical analysis of data • Normal distribution - • Notation $X \sim N(0, 1)$ • z = (data – mean) / std dev • Savings and investments • The effect of inflation • Retail Price Index (RPI), Consumer Price Index (CPI) • Calculating Income Tax and National Insurance in context. • convert currency using exchange rate, including commission • create and interpret a budget • Fermi Estimation • y = mx + c • Gradient of a line connecting two points • Perimeter of 2D shapes and their areas, fractional areas of circles, area of composite shapes	• Correlation, causation • Outliers • Product Moment Correlation Coefficient (PMCC) • scatter diagrams • regression lines • interpolation with regression and extrapolation. • Probability, Venn diagrams and simple tree diagrams • Probability of combined events: to include independent and dependent events • 'population' • Knowing that the mean of a sample is called a 'point estimate' for the mean of the population • Confidence intervals for the mean of a normally distributed population of known variance using $\frac{\sigma^2}{n}$ • Calculate surface areas of spheres, cones, pyramids and composite solids • Similarity	• The exam board sends out preliminary material for the exam. Students will be taught the concepts in the preliminary material and links are made across the Level 3 Mathematical Studies curriculum.	• The final exam is in this term. Students will have time for deliberate practice to ensure they are fully prepared for the exam.

	• (APR)		• Use of Pythagoras on 2D shapes and in 3D situations.		
Assessment for and of learning	Unit assessments	Unit assessments	Unit assessments Mock exam	Unit assessments	Unit assessments